REMARKS/ARGUMENTS

Favorable reconsideration of this application, in view of the present amendment and in light of the following discussion, is respectfully requested.

Claims 1-29 are pending. In the present amendment, Claims 1, 9, 10, 12, and 23 are currently amended. Support for the present amendment can be found in the original specification, for example, at page 11, lines 19-26, and page 14, lines 4-9, and in original Claims 2 and 14. Thus, it is respectfully submitted that no new matter is added.

In the outstanding Office Action, Claims 10, 11, 22, and 24-29 were rejected under 35 U.S.C. § 112, first paragraph; Claims 1-7 and 9-29 were rejected under 35 U.S.C. § 103(a) as unpatentable over Alfano (U.S. Patent No. 4,479,499) in view of Everett et al. (U.S. Patent No. 6,522,407, hereinafter "Everett"); and Claim 8 was rejected under 35 U.S.C. § 103(a) as unpatentable over Alfano in view of Everett, and further in view of Karazivan et al. (U.S. Publication No. 2005/0181333, hereinafter "Karazivan").

In response the rejection of Claims 10, 11, 22, and 24-29, Applicant respectfully requests reconsideration of this rejection and traverses this rejection, as discussed below.

In rejecting Claims 24-29 under 35 U.S.C. § 112, first paragraph, the Office Action takes the position that a UV cut filter configured to block light of less than 400 nm is not supported by the original specification. However, the original specification, for example, at page 19, line 29 to page 20, line 3 describes a UV cut filter passing light of at least 400 nm, such as a BA 400 manufactured by Nikon Corporation. Accordingly, a person of ordinary skill in the art of UV cut filters would understand that a cut filter which passes light of at least 400 nm also cuts light of below 400 nm. Thus, Applicant respectfully submits that Claims 24-29 were fully described in the original specification.

Regarding Claim 10, it is noted that Claim 10 is hereby amended to recite that "the lower threshold E_1 is calculated based on predetermined fluorescence intensities of at least

one healthy tooth when measuring conditions of the ultraviolet irradiation device and the fluorescence receiving device are determined." Support for this amendment can be found in the original specification, for example, at page 11, lines 19-26 which describes that a measured dental caries degree CD_1 is compared to lower threshold E_1, which is used to distinguish a healthy tooth from a dental caries. Thus, because only a single area is measured, this single area is compared with predetermined values of the healthy tooth which are stored for a plurality of measuring conditions such that the conditions can be matched to those that occurred during measuring the suspected dental caries tooth. Accordingly, it is respectfully submitted that amended Claim 10, and Claim 11 which depends thereon, were fully described in the original specification.

In rejecting Claim 22, the Office Action takes the position that "support for the computer readable medium including computer executable instructions executed by a processor to perform the method can not be found." However, as explained in the original specification, for example, at page 8, lines 21-25, a central processing unit decodes and carries out instructions from a control program in a dental caries detecting program. Further, an internal memory temporarily stores information from the input/output control portion or analysis data from the storage device. Additionally, the fluorescence data and analysis portion is implemented as means including the dental caries detecting program, the CPU, and a hardware resource (computer) such as a main memory acting incorporation with one another when a dental caries detecting program is carried by the CPU. Thus, Claim 22 is believed to be fully supported by the original specification.

Accordingly, in view of the above discussion, Applicant respectfully submits that each of Claims 10, 11, 22 and 24-29 were fully described in the original specification. Thus, it is respectfully requested that the rejection of these claims under 35 U.S.C. § 112, first paragraph be withdrawn.

Turning now to the rejections under 35 U.S.C. § 103(a), Applicant respectfully requests reconsideration of these rejections and traverses these rejections, as discussed below.

Claim 1 is hereby amended to recite, in part, a dental caries detecting device comprising "a fluorescence receiving portion that receives fluorescence from a tooth in response to ultraviolet irradiation of at least two different light intensities from the ultraviolet light source." Accordingly, by utilizing ultraviolet irradiation of at least two different light intensities from the ultraviolet light source, the progress degree of the dental caries can be detected with high sensitivity since the depth of a tooth excited by an ultraviolet beam varies in accordance with the change of the light intensity. Additionally, detection and progress of the dental caries can be measured by irradiating via a light source having different fluorescent intensities to the specific location of a tooth without comparison to a healthy tooth. Applicant respectfully submits that the cited references do not disclose or suggest every feature recited in amended Claim 1.

Alfano describes a method and apparatus for detecting the presence of caries in teeth.[1] Specifically, with regard to the luminance embodiment, Alfano describes that the apparatus includes a light source 11 that outputs the light to pass through a narrow band filter 13 having a bandwidth of preferably less than about 10 nm.[2] In a separate embodiment of elastic light scattering, in which fluorescence from a tooth is not detected, Alfano describes using light sources 11 and 12 and filters 13 and 22 to produce light of wavelengths of 500 nm and 600 nm respectively.[3]

The Office Action, on pages 5 and 6, acknowledges that "Alfano does not specifically teach the filter is configured to block light of less than 400 nm" and that "Alfano does not specifically teach a wavelength band having a wavelength width from about 10 nm to 260 nm for the first wavelength and 10 nm to 170 nm for the second wavelength, the optical device is

[1] See Alfano, at column 1, lines 6-7.
[2] See Alfano, at column 6, lines 1-8 and in Figure 8.
[3] See Alfano, at column 9, lines 1-16 and at column 10, lines 3-6.

a color CCD and a computer to carry out the methods." Instead, the Office Action relies on Everett to cure these deficiencies of Alfano.

However, it is respectfully submitted that the cited combination of Alfano in view of Everett does not disclose or suggest "an ultraviolet light source; a fluorescence receiving portion that receives fluorescence from a tooth in response to ultraviolet irradiation of at least two different light intensities from the ultraviolet light source," as recited in amended Claim 1.

Instead, as discussed above, Alfano only describes light sources 11 and 12 and filters 13 and 22 that produce light of different wavelengths with respect to *elastic light scattering*, which does not include a fluorescence receiving portion. On the contrary, with regards to the *luminous embodiment* described in column 5-8 of Alfano, only a single light source is used. Further, Alfano does not disclose or suggest changing the intensity of light source used in the luminance embodiment. According, a person of ordinary skill in the art reading Alfano as modified by Everett would not be motivated to add a second light source to the luminance embodiment.

Therefore, it is respectfully submitted that the combination of Alfano in view of Everett does not disclose or suggest every feature recited in amended Claim 1. Thus, it is respectfully requested that the rejection of Claim 1, and all claims dependent thereon, as unpatentable over Alfano in view of Everett be withdrawn.

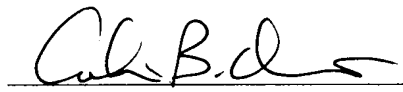
It is noted that each of the remaining independent claims (Claims 2, 9, 12, 14, and 23) recite that fluorescence is obtained from a measuring area of a tooth in response to at least two different light intensities from a light source. Accordingly, it is respectfully submitted that each of the independent claims, and all claims dependent thereon, patentably define over Alfano in view of Everett. Thus, it is respectfully requested that the rejection based on these references be withdrawn.

Regarding the rejection of Claim 8, it is noted that Claim 8 is dependent on Claim 2. Further, it is respectfully submitted that Karazivan does not cure the above noted deficiencies of Alfano in view of Everett. Thus, it is respectfully submitted that Claim 8 patentably defines over the cited combination of Alfano in view of Everett, and further in view of Karazivan. Thus, it is respectfully requested that the rejection of Claim 8 be withdrawn.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for allowance. A Notice of Allowance is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Richard L. Chinn
Attorney of Record
Registration No. 34,305

Colin B. Harris
Registration No. 58,969

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)